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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,046	06/15/2007	Taku Hirayama	SHIGA7.055APC	5635

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EXAMINER

JOHNSON, CONNIE P

ART UNIT	PAPER NUMBER
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1795

NOTIFICATION DATE	DELIVERY MODE
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09/21/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/590,046	Applicant(s) HIRAYAMA ET AL.	
	Examiner CONNIE P. JOHNSON	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 July 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/21/2009, 7/28/2009</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/23/2009 has been entered.

Response to Amendment

2. The remarks and amendment filed 7/23/2009 are entered and fully considered.
3. Claims 1-19 are presented.
4. Claims 1 and 8 are amended.

Double Patenting

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-5, 8-13 and 16-19 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 3-5 and 7 of copending Application No. 11/572,630. Although the conflicting claims are not identical, they are not patentably distinct from each other because the copending application discloses a positive resist composition comprising a base material for a pattern-forming material which contains a protector (XI) of a polyhydric phenol compound (x) having two or more phenolic hydroxyl groups and a photoacid generator.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 3, 5, 8, 9, 11, 13 and 16-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Kawabe et al., U.S. Patent No. 5,707,776.

Kawabe teaches a positive resist composition comprising a nonpolymeric dissolution inhibiting compound with a molecular weight of 1,000 to 2500 (col. 24, lines 22-24). The nonpolymeric dissolution inhibiting compound has 80-100% by weight of dissolution inhibiting groups with no more than 20% by weight of unprotected groups

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on the phenolic hydroxyl compounds as exemplified in compounds (3), (8), (11), (12), (14), (15) (column 28) and inherently have a molecular dispersity of no more than 1.5. Based on the molecular weight of the nonpolymeric dissolution inhibiting compound, the proportion of phenolic hydroxyl groups is in the range of 5 to 50mol% as in instant claims 17 and 19. The recitation in claim 1, “an ability to form an amorphous film using a spin coating method” is intended use and does not add positive recitation to the claim. Applicant is reminded of MPEP 2106 for intended use. The composition also comprises a photo-acid generator (col. 9, line 8) and a nitrogen-containing compound (col. 43, lines 10-55).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1, 2, 4, 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawabe et al., U.S. Patent No. 5,707,776.

Kawabe teaches a positive resist composition comprising a nonpolymeric dissolution inhibiting compound with a molecular weight of 1,000 to 2500 (col. 24, lines 22-24). The nonpolymeric dissolution inhibiting compound has 80-100% by weight of dissolution inhibiting groups with no more than 20% by weight of unprotected groups on the phenolic hydroxyl compounds as exemplified in compounds (3), (8), (11), (12),

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(14), (15) (column 28) is representative of formula (2) of instant claim 1 and therefore has a molecular dispersity of no more than 1.5. The recitation in claim 1, “an ability to form an amorphous film using a spin coating method” is intended use and does not add positive recitation to the claim. Applicant is reminded of MPEP 2106 for intended use. In the reference, compound (15) on the first benzene ring, CH₃ is (R₂₁) with g=1, an OR wherein R is hydrogen and CH₃ (R₂₂) with h=1. The second benzene ring has an OR, wherein R is hydrogen, CH₃ (R₂₃) with i=1, and (R₂₄)_j is equal to zero. The third benzene ring has CH₃ (R₂₆) with l=1, CH₃ (R₂₅) with k=1 and an OR wherein R is hydrogen. The composition also comprises a photo-acid generator (col. 9, line 8) and a nitrogen-containing compound (col. 43, lines 10-55). Kawabe does not teach using a compound with the structure as in formula (I) of claim 2 over the other nonpolymeric dissolution inhibitors for the positive resist composition. However, it would have been obvious to one of ordinary skill in the art to use compound (15), which has the same structure as formula (I) in claim 2, as the nonpolymeric dissolution inhibitor because Kawabe teaches compound (15) is a specific example of a preferred nonpolymeric dissolution inhibitor for the positive resist (col. 25, lines 10-13 and col. 26, lines 12-67).

10. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tan et al., U.S. Patent No. 6,638,683 B1.

Tan teaches a positive resist composition comprising a polyhydric phenol compound as a nonpolymeric dissolution inhibiting compound with a molecular weight range of 500 to 3,000 (col. 23, lines 20-22). The nonpolymeric dissolution inhibitors have 2 or more phenolic hydroxyl groups wherein a portion of the phenolic hydroxyl

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groups are protected by dissolution inhibiting groups. Specifically, col. 31, compound (10) meets the limitations of formula (I) in instant claim 2, wherein R=hydrogen, R₁₁= an alkyl group, l=0, m=0, j=1, g=1, k=0, q=0 and p=0. Tan also teaches the low molecular weight dissolution inhibiting compounds improve solubility in solvents and thereby enhance the effects of the composition (col. 22, lines 41-45). The recitation in claim 1, "an ability to form an amorphous film using a spin coating method" is intended use and does not add positive recitation to the claim. Applicant is reminded of MPEP 2106 for intended use. Since compound (10) meets the limitations of formula (I) of instant claim 2, it is expected that compound (10) in the prior art has a molecular dispersity of no higher than 1.5. The substituent groups attached to compound (10) meets the limitations of dissolution groups in the compound of instant claim 2. Therefore, the proportion of the dissolution inhibiting groups is 80-100% by weight based on the number of dissolution inhibiting groups with no more than 20% by weight of unprotected groups on the phenolic hydroxyl compounds present in the structure. Specifically, compound (10) has 2 phenolic hydroxyl groups with 2 protecting groups for each hydroxyl and another phenolic hydroxyl group with 2 hydroxyls and no protecting groups. Therefore, the proportion of protected phenolic hydroxyl groups is 50mol%, relative to the combined total of phenolic hydroxyl groups protected with acid-dissociable groups and unprotected phenolic hydroxyl groups as in instant claims 17 and 19. The composition also comprises a photo-acid generator (col. 44, lines 23-25) and a nitrogen-containing organic compound (col. 66, lines 61-67). Tan also teaches a method of making a positive resist pattern comprising applying a photosensitive composition on a substrate, exposing, post-exposure baking and developing (col. 68, lines 34-40). In the

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preparation and evaluation of photosensitive compositions in column 73, Tan teaches prebaking the resist composition after applying the resist solution to the substrate (col. 73, lines 24-31). Tan does not specifically teach using compound (10), which is a polyhydric phenol compound with the same structure as in formula (I) of claim 2, as the nonpolymeric dissolution inhibitor over the other dissolution inhibiting compounds disclosed in the reference. However, it would have been obvious to one of ordinary skill in the art to use compound (10) as the dissolution inhibitor because Tan teaches any of the non-polymeric dissolution inhibitors would function to accelerate dissolution of the alkali-soluble resin in an alkali, absent any evidence to the contrary.

Response to Arguments

11. Applicant's arguments filed 7/23/2009, with respect to the rejection(s) of claim(s) 1-19 under 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made herein.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CONNIE P. JOHNSON whose telephone number is (571)272-7758. The examiner can normally be reached on 7:30am-4:00pm Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Connie P. Johnson/
Examiner, Art Unit 1795

/Cynthia H Kelly/

Supervisory Patent Examiner, Art Unit 1795